



NEWS RELEASE

Visit <http://www.mindef.gov.sg> for more news and information about MINDEF and the SAF

Fact Sheet: Multi-Mission Range Complex

04 Oct 2013

MULTI-MISSION RANGE COMPLEX

This three-storey building houses seven live-firing ranges that are aimed at improving soldiers' shooting proficiency in terms of accuracy and target selection. It comprises both the standard marksmanship ranges (100m) and advanced ranges for multi-tier and urban shooting, and all the ranges can simulate day and night conditions.

Multi-tier
Firing positions as well as enemy and civilian (stationary or moving) targets at upper and lower levels allow soldiers to practise firing downwards and upwards at targets — akin to firing at a multi-storey building.

Judgemental training
Conducted in 50m ranges, this training allows soldiers to shoot at scenario-based video targets, to exercise their ability to decide to shoot or not depending on whether the target is friend or foe. Video or computer-generated images are projected onto rubber screens designed with acoustic sensors to detect where the bullets hit. The video targetry system can also simulate distances up to 1km for machine gun or sniper rifle practices.

Urban Ops
This range trains soldiers, working in Group or Section levels, to operate in urban environments where they will have to execute close-quarter engagements. The target boards, comprising both enemy and civilian figures, are activated by motion sensors. Teams are sent through a series of rooms that can be customised to suit the complexity of the training.

Combat shoot
This range allows soldiers to practise standard 100m shooting as well as the combat shoot (fire-and-movement) where they have to shoot and manoeuvre across simulated natural and man-made obstacles such as boulders and oil drums.

SAFETY FEATURES

- All walls, ceilings and floors are lined with ballistic materials to prevent backslash and ricochet of bullets. Different ranges use different combinations of rubber panels, steel and concrete materials to absorb or shatter bullets upon impact.
- Other than the bulletproof doors at the main entry and exit points, peripheral accessories in the Urban Ops ranges such as doors, lights, CCTVs and props are made of "shoot-through" materials to prevent ricochets and backslashes from bullets.
- A special mechanical ventilation system draws the harmful lead-in-air content (from the ammunition propellant) away from the firer.

Singapore

Background

The Multi-Mission Range Complex (MMRC) is a first-of-class three-storey indoor live firing range located at Pasir Laba. The MMRC leverages on advanced technology to improve soldier shooting competencies and facilitates the training of soldiers' traditional and advanced shooting skills in an evolving operating environment.

The MMRC is a Government-Owned, Contractor-Operated as part of a Public-Private-Partnership scheme. The SAF manages the MMRC's developmental and running costs, while the design and build functions of the infrastructure and systems are managed by the SAF, DSTA and the principal contractor, Multi-Mission Range Services (MMRS).

Features and capabilities

MMRC comprises seven ranges including the following:

- Two 100m Combat Ranges for the standard 100m Marksmanship Test packages.
- Two 100m double storey Multi-Tier Ranges for advanced shooting skills.
- An Urban Operations Range consisting of 2 chambers with 10 different configurations for close-quarter shooting.
- Two 50m ranges that hones our soldiers' judgmental skills through the use of a scenario-based video/CGI targetry system.

The MMRC's safety features include the following:

- **Ballistic material.** All walls, ceilings and floors are lined with ballistic materials to prevent backslash and ricochet of bullets. Different ranges use different combinations of rubber panels, steel and concrete materials to absorb or shatter bullets upon impact. Main entry and exit points at the ranges are bullet proof and the peripheral accessories at the urban ops ranges such as doors, lights, CCTVs and props are made of "shoot-through" materials that prevent ricochets and backslashes.
- **Mechanical ventilation system.** A special mechanical ventilation system draws the harmful lead-in-air content from the ammunition propellant, away from the soldier.

Benefits

Effective and efficient use of training time and resources. The MMRC is designed to be an all-weather range for both day and night firing. With lighting control, the MMRC will be able to simulate day or night shooting conditions, thus removing the need to wait for nightfall to commence "night shoots". Waiting time is further reduced as training is not subjected to

disruption by inclement weather. As an example, approximately 900 soldiers are able to complete the Marksmanship Test package in a day as compared to two to three days in outdoor ranges. These features of the MMRC effectively optimises the use of land and training spaces as it effectively replaces seven outdoor ranges in terms of throughput of soldiers undergoing training.

Enhanced training realism and soldier experience. The MMRC provides realistic scenario-based training. All weather day/night conditions in both urban and conventional terrains with different operational scenarios can be programmed to hone our soldiers' skills. The use of state-of-art video targetry system such as Computer Generated Imagery is able to provide soldiers with scenario-based training where civilians and hostile targets appear at random. This adds to the realism of the training experience which presently cannot be replicated at the current baffled ranges.

Outsourcing of Services. To ensure our soldiers shooting skills remain as their core focus during training, the functional services in MMRC are outsourced. These services include:

- **Ammunition Management.** The firing units will indent and authorise the ammunition required. Upon which, the outsourced contractor, MMRS, will collect, pack, distribute and return the ammunition.
- **Conduct of Range.** MMRC operating staff conducts most of the basic and advanced shooting packages, with the exception of Urban Operations and Sniper Live Firing. These packages are conducted by the respective units as the tactics, techniques and procedures require instruction by unit commanders. In such packages, the MMRC staff will assist in operating the computer and targetry systems.
- **Coaching and AAR.** MMRC staff are also qualified as coaches. MMRC coaches are certified by the SAF and undergo the Infantry Small Arms Coaching Course. MMRC coaches are able to teach and provide feedback to soldiers and are particularly helpful for those who are not strong shooters. MMRC coaches will conduct After Action Reviews and weak firers may be coached at the Marksmanship Corrective Trainer before they shoot again.